

## **Gender and Risk-Taking Behaviors: The ‘Generation Z’ College Risk-Taker in a Kenyan University**

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### **Abstract**

Enrolment in African institutions of higher learning has doubled in the last 20 years yet there is limited evaluation of risk-taking behaviors in this growing student population. Although there are many components to risk-taking behaviors, externalizing risk-taking behaviors like binge drinking, high-risk sexual behaviors and problem gambling as well as internalizing risk-taking behaviors like suicidality are among the top ten causes of death and disabilities impacting university students. Moreover, there is rising global concern about increasing participation in risk-taking behaviors among university students. However, focus generally remains on evaluating single, traditional risk-taking behaviors with little done to evaluate if multiple risk-taking behaviors occur in the same individuals. This study sought to determine the prevalence of traditional and “novel” risk-taking behaviors among female and male students in a university in Kenya. Data from 297 undergraduate students was collected using a sociodemographic and socio-behavioral questionnaire and the DSM-IV Screen for Gambling (NODS-CLiP). Descriptive analyses showed that 61.3% of the students in the sample had engaged in risk-taking behaviors with 26.9% of them involved in multiple risk-taking behaviors. Chi-square tests of independence, at 95% confidence level, showed that male students were more likely to participate in high-risk sexual behaviors and problem gambling while female students were more likely to report suicidality. There was no significant gender difference in binge drinking or participation in multiple risk-taking behaviors. These findings underscore the need for gender specific mitigation programs, targeting multiple risk-taking behaviors, within institutions of higher learning in Kenya.

*Keywords:* Binge Drinking, Problem Gambling, Suicidality, High-Risk Sexual Behaviors, University Students, Kenya, NODS-CLiP, Gender.

## **Introduction and Background**

Globalization has had a transformative impact on African cultures especially with regards to female access to formal education (Usoh et al., 2018). Consequently, female enrolment in higher educational institutions around the world has surpassed that of males at 54% with a doubling of female enrolment in African institutions in the last 20 years (UNESCO, 2022). However, there is limited evaluations of how enhanced female enrolment in institutions of higher learning has impacted college risk-taking behaviors across non-Western cultures.

Engagement in risky behaviors increases from adolescence to adulthood and engaging in one risk-taking behavior increases the likelihood of engaging in others due to shared biological and environmental factors (Poorolajal et al., 2018). Currently, concern has been raised over increased female participation in both externalizing and internalizing risky behaviors (Peterson et al., 2021) especially among the generation Z population, those born between 1995 and 2010 (Mahapatra et al., 2022). In stressful conditions, it has been shown that younger generations (Millennials and Gen Z), exhibit significantly worse mental health conditions like depression and anxiety, with reliance on maladaptive coping mechanisms like substance use and sexual encounters with multiple sexual partners (Dhanoa et al., 2020). Such findings suggest a need for increased vigilance for mental health declines, and an increase in risky behaviors, among younger generations.

There are many components to risk-taking behaviors with binge drinking, high-risk sexual behaviors and suicidality being behaviors that are among the top ten causes of death and disabilities impacting university students (WHO, 2022). In addition, problem gambling has emerged as a risky behavior among non-Western university students (Ogachi et al., 2020).

Binge drinking is a pattern of consumption of five standard drinks for men and four standard drinks for women that raises blood alcohol levels to 80mg/dl, where a standard drink is defined by one 12 oz beer, one five oz glass of wine or a 1.5 oz shot of spirit (Courtney & Polich, 2009). According to WHO (2018), the prevalence of heavy, episodic drinking around the world stood at 21.9% for males and 4.7% for females with regional distribution at 36.2% for males and 11.5% for females in Europe, 30.1% for males and 6.4% for females in the United States, and 20.8% for males and 4.3% for females in Africa. Globally, 91,000 more women were noted to have consumed alcohol in 2016 compared to the year 2000 (WHO, 2018).

Binge drinking levels among university students in Africa have been placed at 12% - 66% and been associated with male students (Ansari et al., 2020). However, concerns have been raised globally about higher binge drinking among female college students (White, 2020). For example, a United States nationally representative sample showed that binge drinking among college women increased from 13% to 32% between 2006 and 2018 (McKetta, & Keyes, 2020). It has been argued that higher binge drinking among young female adults at the university is reflective of evolving cultural and societal norms, with women more exposed to social contexts in which drinking is socially acceptable (Mead, 2023). However, other studies are showing that problematic drinking among young adult females in the university is more likely due to the use of alcohol as a coping tool for mental health challenges like depression and/or stressors of everyday life (Villanueva-Blasco et al., 2022).

High risk sexual behaviors include early initiation of sexual activity (before 18 years of age) and lack of barrier contraceptives even when an individual is engaging with multiple sexual partners (Chawla & Sarkar, 2019). The prevalence of high-risk sexual behaviors among university students globally ranges at about 30% – 75%, more so among male students (Rintaugu et al., 2020). However, female university students currently engage in risky sexual behaviors at rates significantly higher than previously reported (Iyanda et al., 2020) with students reporting two to as high as six or more sexual partners (Pirani & Matera, 2020). Regardless, sexually active students in the university, including those with multiple partners, do not use barrier contraceptives or use them inconsistently (Andrew et al., 2020). It has been argued that the effect of traditional beliefs and/or formal religiosity on delayed sexual initiation as well as the number of sexual partners is currently small. This is because the generation Z popularizes casual sexual encounters in lieu of long-term emotional relationships, in what is referred to as the “hook up” culture (Caltabiano et al., 2020). In the United States, for example, hookups are considered normative with up to 72% of undergraduates currently engaging in one casual encounter by graduation (Thorpe & Kuperberg, 2021).

Globally, suicide was the 4th leading cause of death among 15- to 29-year-olds, with 77% of all suicides occurring in low and middle-income countries (WHO, 2023). Prevalence of suicidal behaviors among university students has been placed at 9% - 32% for suicidal ideation and 4% - 10% for attempted suicide (Asfaw et al., 2020). The majority of college students reporting suicidal thoughts and behaviors are females (Desalegn et al., 2020) and this has been associated with adverse life experiences and daily stressors that lead to some female students considering suicide a way to permanently resolve problems (Wu et al., 2021). However, male

college students are more likely to die from suicide attempts due to reduced likelihood of disclosing suicidal ideation and previous suicide attempt (Becker et al., 2018) as well as utilization of serious suicide attempts (SSA) which are defined as suicidal behaviors with clear intent to die irrespective of the method used (Freeman et al., 2017).

It is argued that evolving cultural beliefs and values may be a crucial factor in mental health struggles as they may negatively affect help-seeking behaviors (Bhat, 2022). In Kenya, the national suicide prevalence rate stands at 6.1 per 100,000 including a three times higher prevalence among males than females at 9.1 per 100,000 (World Bank, 2020). Although there is concerted effort to mitigate this rise in suicide cases by the Kenyan government (Ministry of Health, 2022) the focus has remained on suicide mortality, and this may be skewing our understanding of the magnitude of suicidality in Kenya.

Problem gambling is a less severe form of excessive or destructive gambling characterized by high commitment of a person's time as well as high commitment of a person's finances (Delfabbro, 2013). Among college student samples, problem gambling prevalence rates have been placed at 5% and 10% (Sakala et al., 2019) with narrowing in gender differences in problem gambling due to increased female gambling (Castren et al., 2018). The prevalence of gambling has been placed at 80.3% for females and 80.4% for males in New Zealand, 73% for females and 83% for males in Finland, 71% for females and 75% for males in Britain, 68.5% for females and 74.7% for males in Sweden as well as 68.1% for females and 73.1% for males in Canada (McCarthy et al., 2019). However, empirical studies conducted worldwide demonstrate that many non-Western countries do not carry out studies on gambling behaviors (Calado & Griiffiths, 2016). It has been suggested that females currently use gambling to cope with life stressors and elevate low moods (Macia et al., 2022) while others associate increased female problem gambling with changing social values where females now consider gambling a less harmful aspect of socialization (McCarthy et al., 2019).

The concept of multiple risk-taking behavior (MRTB) is typically defined as an individual displaying two or more risky behaviors that have the potential for negative effects on the person's physical and mental well-being (Kipping et al., 2012). For these reasons, students presenting with one risk-taking behavior should ideally be screened for others as co-occurrence of risky behaviors among university students in Africa can range from 21% to 46% (Atorkey et al., 2021).

Female college enrollment in Kenyan institutions of higher learning doubled in the last 20 years, though male enrolment remains higher at 58% compared to female (Kenya National Bureau of Statistics, 2022). The growing trend in females attending university in Kenya highlights the need to investigate risk-taking behaviors among both male and female university students. Although numerous studies have been done to assess for risk-taking behaviors among students in Kenyan universities, the focus has been on single, risky behaviors with little done to evaluate whether multiple risk-taking behaviors occur in the same individuals. Furthermore, there remains a scarcity of research on suicidality and problem gambling in Kenya. This study thus sought to fill this gap by assessing gender and risk-taking behaviors among the 'Generation Z' College students in a Kenyan University. The research questions were: What is the prevalence of binge drinking, high-risk sexual behaviors, suicidal ideation, suicide attempt and problem gambling as single and multiple risk –taking behaviors among young adults at a university in Kenya; and what are the gender differences in risk-taking behaviors among these students?

## Methodology

This research was conducted at a private university in Kenya with 3,951 registered undergraduate students at the time of the study, most of whom were female (n=2431). The main characteristics targeted were male and female undergraduate students between the ages of 18 and 26 years. Yamane formula was used to calculate the sample size as follows;

$$n = \frac{N}{1+N(e)^2} \text{ where;}$$

n = Sample size

N = Population Size (3951, number of registered undergraduate students in the semester).

e = Level of precision (95% confidence interval)

$$n = \frac{3951}{1+3951(0.05)^2} = 363$$

Subsequently, 400 questionnaires were distributed with 329 questionnaires returned. Of these, 32 questionnaires were not analyzed as they lacked a significant amount of information on

socio-demographic and risk-taking behaviors of interest. A final sample size of 297 participants (males=121; females=176) was analyzed representing a 74.25% response rate.

A research-constructed questionnaire was used to collect socio-demographic data including age, gender and year of study. Risk-taking behaviors focused on binge drinking in the preceding six months as well as suicidal ideation or suicide attempt in the preceding year. High-risk sexual behaviors assessed for sexual debut before 18 years of age, having more than one sexual partner and/or sexual activity without consistent barrier protection in the preceding year.

The NODS-CLiP was used to evaluate problem gambling. It is a 3-item screen for both pathological and problematic gambling with questions that target loss of control (C), lying (L) and preoccupation with gambling (P). Any participant responding with yes to any of the three questions was considered to be problem gambling. The value for Cronbach's Alpha for the scale was  $\alpha = .771$  validating the use of the tool in this population.

Descriptive and inferential statistics were conducted using IBM SPSS (version 28.0). The prevalence rates for single and multiple risk-taking behaviors were calculated and presented in terms of frequency and percentages. Chi-square tests of independence were used to assess gender differences in risk-taking behaviors.

## **Results**

There were more female students (n=176) than males (n=121) and a majority of the students (72.0%) were emerging adults in the age range of 18 to 20 years. Other socio-demographic characteristics are presented in table 1.

*Table 1: Socio-Demographic Characteristics of the Participants*

Variable	n =297	%
<i>Gender</i>		
Male	121	40.7%
Female	176	59.3%
<i>Age in Years</i>		
18 – 20	214	72.0%
21 – 23	73	24.3%
24 – 25	6	1.9%
≥26	4	1.6%
<i>Year of Study</i>		
1 <sup>st</sup>	175	58.9%
2 <sup>nd</sup>	68	22.9%
3 <sup>rd</sup>	34	11.4%
4 <sup>th</sup>	20	6.7%
<i>Marital Status</i>		
Single	283	95.3%
Married	8	2.7%
Living with Partner	4	1.3%
Divorced/Separated	2	0.7%
<i>Place of Residence</i>		
Off Campus- Parents/Guardians	127	42.7%
Off Campus-Alone	78	26.3%
On Campus	34	11.4%
Living in a Hostel	33	11.1%
Living with Friends	17	5.7%
Off Campus-Siblings	5	1.7%
No/Inadequate Response	3	1.0%

With regards to risk-taking behaviors, the study found that 61.3% of the study participants (n=182) had participated in at least one risk-taking behavior representing 69.4% of the male students and 55.7% of the female students. Of these, 26.9% (n=80) had participated in multiple risk-taking behaviors representing 33.1% of male students and 22.7% of female students. The findings on gender prevalence of specific risk-taking behaviors are summarized in Table 2.

*Table 2: Gender Differences in Risk-Taking Behaviors*

Variable	Total (n=297)	Males (n=121)	Females (n=176)	Gender Difference (chi-squares, p<.05)
HRSB	129 (43.4%)	64 (52.9%)	65 (36.9%)	M>F
Problem Gambling	56 (18.9%)	44 (36.4%)	12 (6.8%)	M>F
Suicidal Ideation	47 (15.8%)	13 (10.7%)	34 (19.3%)	F>M
Suicide Attempt	25 (8.4%)	3 (2.5%)	22 (12.5%)	F>M
Binge Drinking	29 (9.8%)	12 (9.9%)	17 (9.7%)	M=F
MRTB	80 (26.9%)	40 (33.1%)	40 (22.7%)	M=F

*Note: HRSB=High-Risk Sexual Behaviors, MRTB=Multiple Risk-Taking Behaviors*

The results showed that male students were more likely to report high-risk sexual behaviors ( $X^2 (1, N=297) = 7.435, p=.006$ ) and problem gambling ( $X^2 (1, N=297) = 40.910, P<.001$ ) while female students were more likely to report suicidality ( $X^2 (1, N=297) = 15.158, p<.001$ ). There were no significant gender differences in binge drinking ( $X^2 (1, N=297) = 0.005, p=.941$ ) or participation in multiple risk-taking behaviors ( $X^2 (1, N=297) = 7.767, P=.803$ ).

Analysis was done to determine gender prevalence of externalizing versus internalizing risk-taking behaviors in the individuals noted to have participated in risk-taking behaviors (n=182). The results are presented in table 3 below.



Table 3: Gender and Type of Risk-Taking Behaviors

Risk-Taking Behaviors	Total n=182	Male n=84	Female n=98
<b>Internalizing risk-taking behaviors</b>	<b>28</b>	<b>3</b>	<b>25</b>
	<b>(15.4%)</b>	<b>(3.6%)</b>	<b>(25.5%)</b>
Suicidal ideation	16	2	14
Suicide Attempt	12	1	11
<b>Internalizing plus Externalizing</b>	<b>44</b>	<b>13</b>	<b>31</b>
	<b>(24.2%)</b>	<b>(15.5%)</b>	<b>(31.6%)</b>
Suicidal ideation and HRSB	15	5	10
Suicidal ideation and binge drinking	2	0	2
Suicidal ideation and problem gambling	1	1	0
Suicidal ideation, binge drinking and HRSB	6	1	5
Suicidal ideation, problem gambling and HRSB	4	2	2
Suicidal ideation, binge drinking, problem gambling and HRSB	2	1	1
Suicide attempt and binge drinking	2	0	2
Suicide attempt and HRSB	7	1	6
Suicide attempt and problem gambling	1	0	1
Suicide attempt, binge drinking and HRSB	1	1	0
Suicidal attempt, problem gambling and HRSB	2	1	1
Suicide attempt, binge drinking, problem gambling and HRSB	1	0	1
<b>Externalizing risk-taking behaviors only</b>	<b>110</b>	<b>68</b>	<b>42</b>
	<b>(60.4%)</b>	<b>(81.0%)</b>	<b>(42.9%)</b>
HRSB	56	26	30
Problem gambling	17	14	3
Binge drinking	2	2	0
Binge drinking and HRSB	8	2	6
Binge drinking and problem gambling	1	1	0
Problem gambling and HRSB	22	19	3
Problem gambling, HRSB and binge drinking	4	4	0

Note: HRSB – High-Risk Sexual Behaviors.

The results showed that externalizing risk-taking behaviors were the most prevalent risk-taking behaviors and involved 60.4% of the participants reporting risk-taking behaviors. With regards to gender differences, the majority of male students (81.0%) had participated in externalizing risk-taking behaviors only, with 15.5% reporting both externalizing and internalizing risk-taking behaviors and 3.6% reporting internalizing risk-taking behaviors only. For the female students, 42.9% reported externalizing risk-taking behaviors only, 31.6% reported both externalizing and internalizing risk-taking behaviors, with 25.5% reporting internalizing risk-taking behaviors only.

## Discussion

The current study investigated for gender differences in prevalence of traditional and “novel” risk-taking behaviors occurring singly or concurrently among undergraduate students in Kenya. Risk-taking behaviors were noted in 61.3% of the participants (n=182) with 26.9% of the students (n=80) reporting multiple risk-taking behaviors. Male students were more likely to report high-risk sexual behaviors and problem gambling while female students were more likely to report suicidal ideation and suicide attempt. There was no significant gender difference in binge drinking as well as in participation in multiple risk-taking behaviors.

The findings of 26.9% prevalence rate for multiple risk-taking behaviors fell within the average range of 21% to 46% noted for co-occurrence of risky behaviors among university students in Africa (Atorkey et al., 2021). However, it was still surprising due to several reasons. Firstly, this institution is based on religious principles with the expectation that formal religious beliefs and practices would deter participation in risk-taking behaviors. Although unexpected, our finding appears to agree with assertions that the effect of formal religiosity on risk-taking behaviors is waning globally (Caltabiano et al., 2020; Koletić et al., 2021). The study finding was also surprising as 42.7% of the students resided at home with their parents or guardians. This calls to mind studies that have shown that it was the quality of the relationship between parents and their children, and not just physical residence, which deters future risky behaviors (Neogi & Das, 2017). Overall, the findings suggest that more is needed to evaluate the cultural and religious values held by this generation in order to develop more effective mitigation programs targeting college risk-taking behaviors.

The study finding of 9.8% binge drinking prevalence is slightly lower than global findings that place binge drinking among university students, at 12% - 66% (Ansari et al., 2020). Moreover, as in many other countries currently, this study found no significant gender differences in binge drinking highlighting that enhanced binge drinking among college females is not a cultural or societal issue but a global issue (CDC, 2020; Mead, 2023). This may be reflective of changing cultural values (CDC, 2020; White et al, 2020) or worsening mental health challenges mitigated using alcohol (Villanueva-Blasco et al., 2022). This study’s results suggest a need for more vigilance on changing societal and cultural values among this generation in order to mitigate the rising levels of binge drinking among female college students.

The current study’s findings on high-risk sexual behaviors also mirror previous findings (Rintaugu et al., 2020) as it established that 25.6% of the students had sexual debut before 18

years of age, 20.2% had more than one sexual partner in the preceding year with 29.9% of the sexually active students not using any contraceptive or using non-barrier contraceptives. Although the result of 52.9% prevalence for high-risk sexual behaviors among male students agrees with findings that risky sexual behaviors are more prevalent among male university students (Rintaugu et al., 2020), 36.9% of the female students, in this study, were involved in high-risk sexual behaviors. This could be seen to reflect global concern that female university students are engaging in risky sexual behaviors at rates significantly higher than previously reported (Iyanda et al., 2020). This can be attributed to the use of sex as a symbol of true love in relationships (Caltabiano et al., 2020) or this generations' preference for casual sexual encounters (Dhanoa et al., 2020). The 43.3% prevalence of high-risk sexual behaviors in this population adds voice to studies showing that participation in formal religious activities while at the university, without translation into spiritualism, does not mitigate against risky sexual behaviors (Ameri et al., 2017).

With regards to gambling, this study noted that 18.9% of the study participants were problem gambling reflecting higher prevalence than the reported 5% - 10% among Western and non-Western university students (Ogachi et al., 2020; Zolkwer et al., 2022) and could suggest a rise in problem gambling among this generation. Interestingly, although this study found higher prevalence of problem gambling among male students (36.4%) in line with previous studies (Zolkwer et al., 2022), all the female students (6.8%) who were gambling met the criteria for problem gambling echoing rising concern about female problem gambling (Castren et al., 2018). More is needed in this population to ascertain if female problematic gambling is as a result of life and/or mental health challenges (Macia et al., 2022) or whether it is a reflection of changing social values in this generation with females considering gambling a less harmful aspect of socialization (McCarthy et al., 2018).

For suicidal ideation and suicide attempt, the prevalence rates of 15.8% and 8.4% respectively reflect global prevalence rates of 9% - 32% for suicidal ideation and 4% - 10% for attempted suicide (Asfaw et al., 2020). The higher prevalence for suicidal thoughts and behaviors (89.3%) among female university students compared to their male counterparts, noted in the current study, mirror previous studies in Africa that have found up to 95% of suicidality among female students (Desalegn et al., 2020). However, male college students are less likely to report suicidality (Becker et al., 2018) and therefore there is need to find avenues that encourage male college students, in this population, to disclose suicidal ideations.

With regards to gender and type of risk-taking behaviors, this study findings of female participation in externalizing and internalizing risk-taking behaviors adds voice to arguments that when both externalizing and internalizing risk-taking behaviors are assessed, gender differences in risk-taking prevalence begin to narrow (Peterson et al., 2021). In this study, male students were more likely to participate in externalizing risk-taking behaviors only (81.0%) and thus studies that focus exclusively on externalizing risk-taking behaviors may be skewing understanding of college risk-taking prevalence. This study also noted that 46.2% of male students and 51.6% of female students reporting both internalizing and externalizing risk-taking behaviors reported co-occurrence of suicidality and high-risk sexual behaviors. The findings above suggest a need for further qualitative studies to look for commonalities in risk-factors or incentives that lead to college students' participation in multiple risk-taking behaviors. One such study can seek to evaluate if high-risk sexual behaviors are used as a means to cope with suicidality or whether suicidal ideation and suicide attempts result from high-risk sexual behaviors.

The findings of this study are significant to policy makers at the university, community and national level as well as practitioners working with university students as they highlighted high prevalence of traditional and "novel" risk-taking behaviors among this unique generation. The findings call attention to a need for mitigation programs, for college risk-taking, that focus less on "behavioral control" of perceived shortcomings but more on embracing development of competencies, goals and skills that focus on individual needs (Sarhel et al., 2020). Moreover, the study findings present possible avenues for further research geared towards exploring the cultural and religious views held by students in this generation, that may be perpetuating risk-taking behaviors.

## **Conclusion**

Externalizing and internalizing risk-taking behaviors are prevalent, in both male and female university students in Kenya, as single and multiple risk-taking behaviors. This finding underscores a need for gender-specific, mitigation programs, which target multiple risk-taking behaviors within institutions of higher learning in Kenya.

## References

- Ameri, Z., Mirzakhani, F., Nabipour, A. R., Khanjani, N., & Sullman, M. J. M. (2017). The relationship between religion and risky behaviors among Iranian university students. *Journal of Religion and Health, 56*(6), 2010–2022. <https://doi.org/10.1007/s10943-016-0337-1>
- Ansari, W. E., Salam, A., & Suo,inen, S. (2020). Is alcohol consumption associated with poor perceived academic performance? Survey of undergraduates in Finland. *International Journal of Environmental Research and Public Health, 17*(4). doi:10.3390/ijerph17041369
- Asfaw, H., Yigzaw, N., Yohannis, Z., Fekadu, G., & Alemayehu, Y. (2020). Prevalence and associated factors of suicidal ideation and attempt among undergraduate medical students of Haramaya University, Ethiopia. A cross-sectional study. *PLOS ONE, 15*(8), 1 – 13,
- Atorkey, P., Byaruhanga, J., Paul, C., Wiggers, J., Bonevski, B., & Tzelepis, F. (2021). Multiple Health Risk Factors in Vocational Education Students: A Systematic Review. *International Journal of Environmental Research and Public Health, 18*(2), 637.
- Becker, S. P., Holdaway, A. S., & Luebbe, A. M. (2018). Suicidal Behaviors in College Students: Frequency, Sex Differences, and Mental Health Correlates Including Sluggish Cognitive Tempo. *Journal of Adolescent Health, 63*(2), 181–188.
- Benzerouk, F., Djerada, Z., Naassila, M., Barrière, S., Kaladjian, A., & Gierski, F. (2022). Role of impulsivity and emotion dysregulation dimensions on core characteristics of binge drinking among university students. *Psychologica Belgica, 62*(1), 286–296. <https://doi.org/10.5334/pb.1167>
- Bhat, M. A. (2022). Globalization and mental health disorders among young people: Highlights from India and China. *Society and Culture Development in India, 2*(1), 81–96. <https://doi.org/10.47509/SCDI.2022.v02i01.06>
- Caltabiano, M., Castiglioni, M., & De-Rose, A. (2020). Changes in the sexual behavior of young people: Introduction. *Genus, 76*:38. doi.org/ 10.1186/s41118-020-00107-1.
- Castrén, S., Heiskanen, M., & Salonen, A. H. (2018). Trends in gambling participation and gambling severity among Finnish men and women: Cross-sectional population surveys in 2007, 2010 and 2015. *BMJ Open, 8*(8), e022129. <https://doi.org/10.1136/bmjopen-2018-022129>
- Centre for disease control and prevention. (2020). *Excessive alcohol use is a risk to women*. <https://www.cdc.gov/alcohol/fact-sheets/womens-health.htm>.
- Chawla, N., & Sarkar, S. (2019). Defining “high-risk sexual behavior” in the context of substance use. *Journal of Psychosexual Health, 1*(1), 26–31.
- Courtney, K. E., & Polich, J. (2009). Binge drinking in young adults: Data, definitions, and determinants. *Psychological Bulletin, 135*(1), 142–156.
- Davids, E.L., Zembe, Y., de Vries, P.J., Matthews, C. & Swartz, A. (2021). Exploring condom use decision-making among adolescents: The synergistic role of affective and rational processes. *BMC Public Health, 21*, 1894. doi.org/10.1186/s12889-021-11926-y

- Delfabbro, P. (2013). Problem and pathological gambling: A conceptual review. *The Journal of Gambling Business and Economics*, 7(3), 35–53.
- Desalegn, G. T., Wondie, M., Dereje, S., & Addisu, A. (2020). Suicide ideation, attempt, and determinants among medical students Northwest Ethiopia: An institution-based cross-sectional study. *Annals of General Psychiatry*, 19(1), 44.
- Dhanoa, A., Ehsan, F., Huxter, K., Moller, C. L., Nolet-Mulholland, L., & Dahal, R. (2020). Young and risky: Sexual behaviors among Generation Z and Millennials. *Eureka*, 5(1). doi.org/10.29173/eureka28749
- Iyanda, A. E., Dinkins, B. J., Osayomi, T., Adeusi, T. J., Lu, Y., & Oppong, J. R. (2020). Fertility knowledge, contraceptive use and unintentional pregnancy in 29 African countries: A cross-sectional study. *International Journal of Public Health*, 65(4), 445–455.
- Kenya National Bureau of Statistics. (2022). 2019 Kenya population and housing census, Volume 111: Distribution of population by age and sex. Retrieved from www.knbs.or.ke.
- Kipping, R. R., Campbell, R. M., MacArthur, G. J., Gunnell, D. J., & Hickman, M. (2012). Multiple risk behaviour in adolescence. *Journal of Public Health*, 34(1), i1–i2.
- Koletić, G., Landripet, I., Tafro, A., Jurković, L., Milas, G., & Štulhofer, A. (2021). Religious faith and sexual risk taking among adolescents and emerging adults: A meta-analytic review. *Social Science & Medicine*, 291, doi.org/10.1016/j.socscimed.2021.114488
- Macía, L., Estévez, A., & Jáuregui, P. (2022). Gambling: Exploring the role of gambling motives, attachment and addictive behaviours among adolescents and young women. *Journal of Gambling Studies*. doi.org/10.1007/s10899-022-10124-8
- Mahapatra, Gopal & Bhullar, Naureen & Gupta, Priyansha. (2022). Gen Z: An emerging phenomenon. *NHRD Network Journal*, 15, 246-256. doi:10.1177/26314541221077137.
- McCarthy, S., Thomas, S. L., Randle, M., Bestman, A., Pitt, H., Cowlshaw, S., & Daube, M. (2019). Women's gambling behavior, product preferences, and perceptions of product harm: Differences by age and gambling risk status. *Harm Reduction Journal*, 15(1), 22. doi.org/10.1186/s12954-018-0227-9
- McKetta, S. C., & Keyes, K. M. (2020). Trends in U.S. women's binge drinking in middle adulthood by socioeconomic status, 2006-2018. *Drug and alcohol dependence*, 212, Article 108026. https://doi.org/10.1016/j.drugalcdep.2020.108026
- Mead, D. (2023). The gender gap in university enrolment: Evidence from subjective expectations. *Education Economics*, 31(1), 54–76.
- Ministry of Health. (2022). Suicide prevention strategy 2021-2026. https://www.health.go.ke/wp-content/uploads/2022/02/SUICIDE-PREVENTION-STRATEGY-2021-2026.pdf
- Neogi, S., & Das, C. (2017). Impact of family relationships on risk-taking behavior among college students. *International Journal of Development Research*, 7(8). 15426-15430.

- Ogachi, F. M., Karega, M., & Mvungu, E. N. (2020). Prevalence and factors associated with gambling disorder among Kenyan university students involved in sports betting. *International Journal of Education and Research*, 8(4), 131 – 142.
- Peterson, R., Dvorak, R. D., Woerner, J., & Lewis, M. A. (2021). Internalizing symptoms, alcohol use, and protective behavioral strategies: Associations with regretted sexual experiences of college students. *Journal of Affective Disorders*, 283, 363–372. doi.org/10.1016/j.jad.2021.01.077.
- Poorolajal, J., Mohammadi, Y., Soltanian, A. R., & Ahmadpoor, J. (2019). The top six risky behaviors among Iranian university students: A national survey. *Journal of Public Health*, 41(4), 788–797.
- Rintaugu, G. E., K. Thangu, E., Oyeyemi, A., & A. Monyeki, M. (2020). Sexual behavioral patterns of Kenyan university student-athletes: Implications for sports managers. *Baltic Journal of Sport and Health Sciences*, 3(118), 33–42.
- Sakala, C., Paul, R., & Sheikh, W. A. (2019). Prevalence of sports betting addictive disorder among the medical students at the University of Zambia in Lusaka, Zambia. (2019). *Medical Journal of Zambia*, 46(4), 329 - 334.
- Sarkhel, S., Singh, O., & Arora, M. (2020). Clinical practice guidelines for psychoeducation in psychiatric disorders: General principles of psychoeducation. *Indian Journal of Psychiatry*, 62(8), 319 - 323.
- Thorpe, S., Kuperberg, A. (2021). Social motivations for college hookups. *Sexuality & Culture*, 25, 623–645. <https://doi.org/10.1007/s12119-020-09786-6>
- Usoh., E., Ohyver, D. A. Mat, S., Ahmad, P. & Bakar, N. (2018). Globalisation and gender equality in education: Government and NGO's roles in empowering women. *International Journal of Engineering and Technology*, 7, 128-131.
- United Nations, Department of Economic and Social Affairs, Population Division. (2019). *World Fertility 2019: Early and later childbearing among adolescent women*. Retrieved from [https://www.un.org/en/development/desa/population/publications/pdf/fertility/World\\_Fertility\\_2019.pdf](https://www.un.org/en/development/desa/population/publications/pdf/fertility/World_Fertility_2019.pdf).
- Villanueva-Blasco, V. J., J., M.-M., Villanueva-Silvestre, V., & Vázquez-Martínez, A. (2022). Relationship between depression and risky alcohol consumption in women: The mediating role of coping styles and age. *International Journal of Mental Health and Addiction*. doi.org/10.1007/s11469-022-00931-w
- White, H. R., Stevens, A. K., Hayes, K., & Jackson, K. M. (2020). Changes in alcohol consumption among college students due to COVID-19: Effects of campus closure and residential change. *Journal of Studies on Alcohol and Drugs*, 81(6):725-730.
- World Bank Group. (2020). <https://data.worldbank.org/indicator/SH.STA.SUIC.FE.P5?locations=KE>

- World Health Organization (2018). *Global status report on alcohol and health*. Geneva, Switzerland.
- World Health Organization. (2022): *Fact Sheets*. Retrieved from <http://www.who.int/news-room/fact-sheets/>
- Wu, R., Zhu, H., Wang, Z., & Jiang. (2021). A large sample survey of suicide risk among university students in China. *BMS Psychiatry*, 21(474), 1 – 9.
- Yunus, F.M., Standage, C., & Walsh, C. (2024). High peak drinking levels mediate the relation between impulsive personality and risk in emerging adults. *Injury Epidemiology*, 11(5). <https://doi.org/10.1186/s40621-024-00487-4>
- Zolkwer, M., Dighton, G., Singer, B., & Dymond, S. (2022). Gambling problems among students attending university in the United Kingdom: Associations with gender, financial hardship and year of study. *Journal of Gambling Issues*. [doi.org/10.4309/FYPO3349](https://doi.org/10.4309/FYPO3349)